30. The isolated polypeptide of claim 27, wherein the immunogenic fragment of (b) comprises at least 20 amino acids.

31. The isolated polypeptide of Claim 27 wherein the amino acid sequence of (a) has at least 95% identity to SEQ ID NOs:2, 4, 6, or 8.

32. The isolated polypeptide of Claim 31 wherein the isolated polypeptide comprises the amino acid sequence of SEQ ID NOs:2, 4, 6, or 8.

33. The isolated polypeptide of claim 31 wherein the isolated polypeptide consists of the amino acid sequence of SEQ ID NOs:2, 4, 6, or 8.

34. A fusion protein comprising the isolated polypeptide of Claim 27.

35. The isolated polypeptide of Claim 27 wherein the polypeptide is the immunogenic fragment having no more than two single amino acid substitutions, deletions or additions relative to the aligned sequence.

36. The isolated polypeptide of Claim 27 wherein the polypeptide is the immunogenic fragment having no more than one single amino acid substitution, deletion or addition relative to the aligned sequence.

37. The isolated polypeptide of Claim 27 wherein the polypeptide is the immunogenic fragment which matches the aligned sequence.

38. An isolated polypeptide encoded by an isolated first polynucleotide wherein the isolated first polynucleotide hybridizes under stringent conditions to a second polynucleotide which encodes the polypeptide of SEQ ID NOs:2, 4, 6, or 8; wherein stringent conditions comprise overnight incubation at 42° C in a solution comprising: 50% formamide, 5×SSC (150 mM NaCl, 15 mM trisodium citrate), 50 mM sodium phosphate (pH7.6), 5× Denhardt's solution, 10% dextran sulfate, and 20 micrograms/ml denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1× SSC at about 65° C; wherein the isolated polypeptide,

when administered to a subject in a suitable composition which can include an adjuvant, or a suitable carrier coupled to the polypeptide, induces an immune response that recognizes a polypeptide having the sequence of SEQ ID NOs:2, 4, 6, or 8.

39. An isolated polynucleotide encoding a polypeptide of Claim 27 or the full complement to the isolated polynucleotide.

40. An isolated polynucleotide encoding a polypeptide of Claim 27, wherein the isolated polynucleotide encodes the polypeptide comprising SEQ ID NOs:2, 4, 6, or 8.

41. An isolated polynucleotide comprising the polynucleotide of SEQ ID NOs:1, 3, 5, or 7.

42. An isolated polynucleotide segment comprising a polynucleotide sequence or the full complement of the entire length of the polynucleotide sequence, wherein the polynucleotide sequence hybridizes to the full complement of SEQ ID NOs:1, 3, 5, or 7 minus the complement of any stop codon, wherein the hybridization conditions include incubation at 42°C in a solution comprising: 50% formamide, 5x SSC (150mM NaCl, 15mM trisodium citrate), 50 mM sodium phosphate (pH7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 micrograms/ml denatured, sheared salmon sperm DNA, followed by washing in 0.1x SSC at 65°C; and, wherein the polynucleotide sequence is identical to SEQ ID NOs:1, 3, 5, or 7 minus any terminal stop codon, except that, over the entire length corresponding to SEQ ID NOs:1, 3, 5, or 7 minus any terminal stop codon, $\mathbf{n_n}$ nucleotides are substituted, inserted or deleted, wherein $\mathbf{n_n}$ satisfies the following expression

$$\mathbf{n_n \leq x_n - (x_n \bullet y)}$$

wherein $\mathbf{x_n}$ is the total number of nucleotides in SEQ ID NOs:1, 3, 5, or 7 minus any terminal stop codon, **y** is at least 0.95, and wherein any non-integer product of $\mathbf{x_n}$ and **y** is rounded down to the nearest integer before subtracting the product from $\mathbf{x_n}$; and wherein the polynucleotide sequence detects *Moraxella catarrhalis*.

43. An expression vector comprising the isolated polynucleotide of Claim 39.

44. A host cell transformed with the expression vector of Claim 43.

45. A process of producing an isolated polypeptide comprising (a) culturing the host cell of Claim 44 under conditions sufficient for the production of the encoded polypeptide and (b) recovering the polypeptide.

46. A nucleic acid vaccine comprising the isolated polynucleotide of Claim 39 and a pharmaceutically acceptable carrier.

47. An isolated polynucleotide segment comprising a polynucleotide sequence or the full complement of the entire length of the polynucleotide sequence, wherein the polynucleotide sequence is identical to SEQ ID NOs:1, 3, 5, or 7 minus any terminal stop codon, except that, over the entire length corresponding to SEQ ID NOs:1, 3, 5, or 7 minus any terminal stop codon, $\mathbf{n_n}$ nucleotides are substituted, inserted or deleted, wherein $\mathbf{n_n}$ satisfies the following expression

$$\mathbf{n_n \leq x_n - (x_n \bullet y)}$$

wherein $\mathbf{x_n}$ is the total number of nucleotides in SEQ ID NOs:1, 3, 5, or 7 minus any terminal stop codon, **y** is at least 0.90, and wherein any non-integer product of $\mathbf{x_n}$ and **y** is rounded down to the nearest integer before subtracting the product from $\mathbf{x_n}$; and wherein the polynucleotide sequence detects *Moraxella catarrhalis*.

48. The isolated polynucleotide of Claim 47 where **y** is at least 0.95.

49. An expression vector comprising the isolated polynucleotide of Claim 47 which codes for a polypeptide that, when administered to a mammal which can include an adjuvant, or a suitable carrier coupled to the polypeptide, induces an immune response that recognizes a polypeptide having the sequence of SEQ ID NOs:2, 4, 6, or 8.

50. A host cell transformed with the isolated polynucleotide or an expression vector comprising the isolated polynucleotide of Claim 47.

51. A process of producing an isolated polypeptide comprising (a) culturing the host cell of Claim 50 under conditions sufficient for the production of the encoded polypeptide and (b) recovering the polypeptide.

52. A vaccine comprising the polypeptide of Claim 27 and a pharmaceutically acceptable carrier.

53. The vaccine of Claim 52, wherein the composition comprises at least one other *Moraxella catarrhalis* antigen.

54. An antibody immunospecific for the polypeptide or immunogenic fragment of Claim 27.

55. A method for inducing an immune response in a mammal comprising administration of the polypeptide of Claim 27.

56. A method of diagnosing a *Moraxella catarrhalis* infection, comprising identifying a polypeptide of Claim 27, or an antibody that is immunospecific for the polypeptide, present within a biological sample from an animal suspected of having such an infection.

57. A method for inducing an immune response in a mammal comprising administration of the isolated polynucleotide of Claim 39.

58. A therapeutic composition useful in treating humans with *Moraxella catarrhalis* comprising at least one antibody directed against the polypeptide of claim 27 and a suitable pharmaceutical carrier.

59. A process for expressing the polynucleotide of Claim 39 comprising transforming a host cell with the expression vector comprising the polynucleotide and culturing the host cell under conditions sufficient for expression of the polynucleotide.

REMARKS

Applicant respectfully requests that this Preliminary Amendment be entered in this case before the calculation of fees and before examination of the subject application.

Claims

Claims 1-26 have been canceled without prejudice or disclaimer of the subject matter therein. Applicant reserves the right to prosecute, in one or more patent applications, the canceled claims, the claims to non-elected inventions, the claims as originally filed, and any other claims supported by the specification.

New claims 27-59 have been introduced. No new matter is added.

Support

Support for the new claims is either obvious, or is as described in the text below. Particularly, support for the recitation of "five single amino acid substitutions, deletions or additions" may be found, for example, at page 7, lines 4-5. Support for compositions of the isolated polypeptide which include an adjuvant recited in the claims may be found, for example, at page 41, lines 1-2. Support for the stringent hybridization conditions may be found, for example, at page 14, line 28 through page 15, line 4. Support for the recitation of sequence relatedness such as in claim 47 may be found in the specification, for example, at page 44, line 12 through page 45, line 8.